



## Complete Summary

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### TITLE

Acute myocardial infarction (AMI): risk-adjusted rate of all cause in-hospital death occurring within 30 days of first admission to an acute care hospital with a diagnosis of AMI.

### SOURCE(S)

Canadian Institute for Health Information (CIHI). Health indicators 2008: definitions, data sources and rationale. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008 May. 39 p.

## Measure Domain

### PRIMARY MEASURE DOMAIN

Outcome

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

### SECONDARY MEASURE DOMAIN

Does not apply to this measure

## Brief Abstract

### DESCRIPTION

This measure is used to assess the risk-adjusted rate of all cause in-hospital death occurring within 30 days of first admission to an acute care hospital with a diagnosis of acute myocardial infarction (AMI).

### RATIONALE

A lower risk-adjusted mortality rate following acute myocardial infarction (AMI) may be related to quality of care or other factors. It has been shown that the 30-day in-hospital mortality rate is highly correlated ( $r=0.9$ ) with total mortality (death in and out of hospital) following AMI. Inter-regional variation in 30-day in-hospital mortality rates may be due to jurisdictional and institutional differences in standards of care, as well as other factors that were not included in the adjustment.

## **PRIMARY CLINICAL COMPONENT**

Acute myocardial infarction (AMI); in-hospital mortality

## **DENOMINATOR DESCRIPTION**

Total number of acute myocardial infarction (AMI) episodes in an 11-month period

Refer to the "Technical Note: 30 Day Acute Myocardial Infarction (AMI) In-hospital Mortality" document listed in the "Companion Documents" field, which describes the episode building and case selection.

## **NUMERATOR DESCRIPTION**

Number of deaths from all causes occurring in-hospital within 30 days of admission for acute myocardial infarction (AMI)

### **Evidence Supporting the Measure**

## **EVIDENCE SUPPORTING THE CRITERION OF QUALITY**

- A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### **Evidence Supporting Need for the Measure**

## **NEED FOR THE MEASURE**

Use of this measure to improve performance  
Variation in quality for the performance measured

## **EVIDENCE SUPPORTING NEED FOR THE MEASURE**

Canadian Institute for Health Information (CIHI). Health indicators 2008. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008. 96 p.

### **State of Use of the Measure**

## **STATE OF USE**

Current routine use

## **CURRENT USE**

Federal health policymaking  
Internal quality improvement  
National reporting

## Application of Measure in its Current Use

### **CARE SETTING**

Hospitals

### **PROFESSIONALS RESPONSIBLE FOR HEALTH CARE**

Physicians

### **LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED**

Regional

### **TARGET POPULATION AGE**

Age 20 to 105 years

### **TARGET POPULATION GENDER**

Either male or female

### **STRATIFICATION BY VULNERABLE POPULATIONS**

Unspecified

## Characteristics of the Primary Clinical Component

### **INCIDENCE/PREVALENCE**

In Canada, outside Quebec, from 2004-2005 to 2006-2007 the risk adjusted rate of all cause in-hospital death occurring within 30 days of first admission to an acute care hospital with a diagnosis of acute myocardial infarction (AMI) was 10.0%. The rate from 2003-2004 to 2005-2006 was 10.3%.

### **EVIDENCE FOR INCIDENCE/PREVALENCE**

Canadian Institute for Health Information (CIHI). Health indicators 2008. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008. 96 p.

### **ASSOCIATION WITH VULNERABLE POPULATIONS**

Unspecified

### **BURDEN OF ILLNESS**

Unspecified

### **UTILIZATION**

Unspecified

## **COSTS**

Unspecified

## **Institute of Medicine National Healthcare Quality Report Categories**

### **IOM CARE NEED**

Getting Better

### **IOM DOMAIN**

Effectiveness

## **Data Collection for the Measure**

### **CASE FINDING**

Users of care only

### **DESCRIPTION OF CASE FINDING**

Hospitalized acute myocardial infarction (AMI) episodes in an 11-month period

### **DENOMINATOR SAMPLING FRAME**

Patients associated with provider

### **DENOMINATOR INCLUSIONS/EXCLUSIONS**

#### **Inclusions**

Total number of acute myocardial infarction (AMI) episodes in an 11-month period

Refer to the "Technical Note: 30 Day Acute Myocardial Infarction (AMI) In-hospital Mortality" document listed in the "Companion Documents" field, which describes the episode building and case selection.

#### **Exclusions**

- Patients with an AMI hospitalization in preceding 365 days
- Patients who developed an AMI during their hospital stay

### **RELATIONSHIP OF DENOMINATOR TO NUMERATOR**

All cases in the denominator are equally eligible to appear in the numerator

### **DENOMINATOR (INDEX) EVENT**

Clinical Condition  
Institutionalization

#### **DENOMINATOR TIME WINDOW**

Time window brackets index event

#### **NUMERATOR INCLUSIONS/EXCLUSIONS**

##### **Inclusions**

Number of deaths from all causes occurring in-hospital within 30 days of admission for acute myocardial infarction (AMI)

##### **Exclusions**

Unspecified

#### **MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS**

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

#### **NUMERATOR TIME WINDOW**

Fixed time period

#### **DATA SOURCE**

Administrative data

#### **LEVEL OF DETERMINATION OF QUALITY**

Not Individual Case

#### **OUTCOME TYPE**

Adverse Outcome

#### **PRE-EXISTING INSTRUMENT USED**

Unspecified

### **Computation of the Measure**

#### **SCORING**

Rate

## **INTERPRETATION OF SCORE**

Better quality is associated with a lower score

## **ALLOWANCE FOR PATIENT FACTORS**

Risk adjustment devised specifically for this measure/condition

## **DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS**

A logistic regression model is fitted with age, gender, and select preadmission comorbid diagnoses as independent variables. Coefficients derived from the logistic model are used to calculate the probability of in-hospital death following acute myocardial infarction (AMI) for each case (episode). The expected number of in-hospital deaths in a region is the sum of the case probabilities of that region. The risk adjusted mortality rate (RAMR) is calculated by dividing the observed number of in-hospital deaths of each region by the expected number of in-hospital deaths of the region and multiplying by the Canadian average in-hospital death rate. A 95 percent confidence interval for the RAMR is also calculated and the method used to calculate confidence intervals is available upon request.

## **STANDARD OF COMPARISON**

External comparison at a point in time  
External comparison of time trends  
Internal time comparison

### **Evaluation of Measure Properties**

## **EXTENT OF MEASURE TESTING**

Unspecified

### **Identifying Information**

## **ORIGINAL TITLE**

30-Day acute myocardial infarction (AMI) in-hospital mortality rate.

## **MEASURE COLLECTION**

[Health Indicators 2008](#)

## **DEVELOPER**

Canadian Institute for Health Information

## **FUNDING SOURCE(S)**

Canadian Government

## **COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE**

*Employees:* Canadian Institute for Health Information (CIHI) Health Indicators

## **FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST**

None

## **ADAPTATION**

Measure was adapted from another source.

## **PARENT MEASURE**

30-Day Acute Myocardial Infarction (AMI) In-Hospital Mortality Rate  
[*Cardiovascular health & services in Ontario: an ICES atlas 1999*. Toronto:  
Institute for Clinical Evaluative Sciences.]

## **RELEASE DATE**

2006 Jun

## **REVISION DATE**

2008 May

## **MEASURE STATUS**

This is the current release of the measure.

## **SOURCE(S)**

Canadian Institute for Health Information (CIHI). Health indicators 2008: definitions, data sources and rationale. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008 May. 39 p.

## **MEASURE AVAILABILITY**

The individual measure, "30-Day Acute Myocardial Infarction (AMI) In-Hospital Mortality Rate," is published in "Health Indicators 2008: Definitions, Data Sources and Rationale." This document is available in Portable Document Format (PDF) from the [Canadian Institute for Health Information \(CIHI\) Web site](http://www.cihi.ca/cihiweb/).

For more information, contact CIHI at, 4110 Yonge Street, Suite 300, Toronto, Ontario, Canada, M2P 2B7; Phone: 416-481-2002; Fax: 416-481-2950; E-mail: [indicators@cihi.ca](mailto:indicators@cihi.ca); Web site: <http://www.cihi.ca/cihiweb/>.

## **COMPANION DOCUMENTS**

The following is available:

- Canadian Institute for Health Information (CIHI). Health indicators 2008. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008. 93 p. This document is available in Portable Document Format (PDF) from the [Canadian Institute for Health Information \(CIHI\) Web site](#).
- Canadian Institute for Health Information (CIHI). ICD-9/CCP, ICD-9-CM and ICD-10-CA/CCI codes for health indicators 2008. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2008. various p. This document is available from the [CIHI Web site](#).
- Canadian Institute for Health Information (CIHI). Technical note: 30 day acute myocardial infarction (AMI) in-hospital mortality. [internet]. Ottawa (ON): Canadian Institute for Health Information (CIHI); [accessed 2008 Aug 15]. [1 p]. This document is available from the [CIHI Web site](#).

## **NQMC STATUS**

This NQMC summary was completed by ECRI Institute on October 10, 2008. The information was verified by the measure developer on December 18, 2008.

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For more information, contact CIHI at, 4110 Yonge Street, Suite 300, Toronto, Ontario, Canada, M2P 2B7; Phone: 416-481-2002; Fax: 416-481-2950.

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